DOCID: 4112086

CIA Sculpture Study Group

For all interested persons

[Friday 13 December 1991
at 1400
in CR 3W Ø83

the first informal meeting to compare notes, information, and ideas will be held.

Among those expected to attend are

[redacted] (b)(3)-P.L. 86-36

and others

Approved for Release by NSA on 04-14-2014,
FOIA Case # 62223

For further information

call [redacted], A214, 963-5815

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(b)(3)-P.L. 86-36

TO: [redacted]

18 November 1991

MEMORANDUM FOR: CRYPTO Novices Everywhere

FROM: George C. Dalmas → CIA EMAIL [redacted] (A214,5815s)

SUBJECT: The CIA Courtyard KRYPTOS Puzzle

CIA
OGA
(b)(3)

There it is again, another newspaper article about that CIA Courtyard KRYPTOS Puzzle. Let's see if this one has anything new to say.

From the Associated Press in Washington it reads:

The new $2.3,000 sculpture decorating the inner courtyard at CIA headquarters contains a secret, coded message so difficult to unscramble that it's spooking the spy agency's smartest spooks!

Sculptor Jim Sanborn wrote the message but steadfastly refuses to divulge its contents. He says the text is known only to himself and CIA Director William Webster, and neither is talking.

Sanborn's encrypted brain-teaser contains about 2,000 letters on the curving copper plates of his outdoor sculpture, "KRYPTOS." The work was erected outside the mirrored windows of the CIA employee cafeteria, offering a tantalizing challenge to the lunchtime crowd inside.

"Everyone wants to know what it says," Sanborn says. "They're out there all the time. There are groups of dark-suited people pointing at it and getting down on their knees trying to figure out what it says. Some take photographs. One guy copied the whole thing down with pencil and paper." ← ! Could one?

Months ago, as rumors of the mystery sculpture swept through the corridors of the CIA's wooded enclave in suburban Langley, Va., police caught two men climbing ladders outside Sanborn's Washington studio trying to photograph the inscription through his windows.

Sanborn says "a friend of a friend" told him recently that frustrated CIA operatives sent a copy of the coded message to their arch rivals at the National Security Agency to run through their ultra-smart Cray supercomputer.

The sculptor, a big, bearded 45-year-old who wears aviator's sunglasses, talks freely about his other works, which have been exhibited at the Smithsonian's Hirshhorn Museum and the Corcoran Gallery of Art in Washington.

However, when he discusses "Kryptos" -- which is Greek for

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"hidden" -- Sanborn retreats behind the cautious, elliptical speech of somebody who's trying to hide something.

He said the sculpture's message deals on several levels with the CIA's tradition of secrecy. He hints that it was a "collaborative project," possibly written with the help of a prominent spy novelist, but he wouldn't elaborate.

The inscription includes a Vigenere table, a system of ciphers devised by the 16th-century French cryptographer Blaise de Vigenere, and a Vigenere-coded message that Sanborn says an expert can decipher in a few hours.

The rest of the message, contained in the lower quadrant, is "a whole different ball game" of multiple codes, Sanborn said. It was written by a retired CIA cryptographer whom the sculptor refuses to identify.

They conducted business only at secret locations, never by telephone or in writing.

"He developed something that really stumped them out there," Sanborn said. "Parts can be deciphered in a matter of weeks or months, but other parts might never be deciphered without the knowledge that Webster has. He has the key to the code, and he can easily figure the whole thing."

Sanborn knew he'd have to share his secret with a CIA confidante.

"Their business is to gather information," he said, "and if they don't know what's going on in their own back yard, how would anyone believe they'd know what was going on in the rest of the world?"

So when the sculpture was dedicated in November 1990, Sanborn handed Webster two sealed envelopes. One contained the translation of the message. The other contained the keywords required to break the code.

For those of you diehards who could like to beat out the Intelligence Community's experts and solve KRYPTOS first, I've provided for your entertainment all the clues and information I could find.

There are four clues the puzzle designer left to be investigated: a sculpture containing the cipher text and code text, a magnetic loadstone which makes a compass point south, a 106 character Morse code message, and two benches near the lily pond.

1) The cipher and code sculpture is very impressive. The cipher text is a half-inch sheet of copper plate that measures 8 feet by 8 feet and is curved to form a "(". The code text is also a half-inch sheet of copper plate that measures 8 feet by 8 feet and is curved to form a ")". They both stand end to end and from above they form a "S". Next to this giant "S" shape is a 12 foot high petrified tree trunk and a small fountain.

2) The compass and loadstone have an interesting orientation. The loadstone is magnetic, making a compass point to it. The compass is carved in a large flat stone next to the loadstone. The compass points South-by-SouthWest.

3) The New Headquarters Building (NHB) entrance has a 106 character Morse code message carved into the large flat half-inch thick copper plates.

4) Near the cipher and code sculpture are two wooden benches on opposite sides of a small lily pond. One faces North the other faces South. The benches are of normal construction with no special markings. The lily pond and stonework contain no special signs or symbols.

Taking each of these four clues in turn may help bring together enough ideas from the puzzle guru conversation pit to lay a foundation for solving the five parts of this puzzle. The quest is to find the elusive plain text keys. This endeavor may actually solve the puzzle and perhaps reveal the useful message it contains.

Here are some of the clues that were recently learned about the code text.

The 869 characters in the code text contain 4 "?". The theory is that these divide the puzzle into 5 paragraphs. Each paragraph seems to be encoded in a different cryptographic method.

Important to deciphering any of the five paragraphs is the following fact: the English language has a usage frequency pattern. The four groups from most to least usage are: ETAOINS HRDLUCM PFWYVB GJQKXZ.

The first paragraph (P-1) seems to be a digraph, a two-character system where each character represents two characters, or where two characters combine to mean one symbol.

E M U F P H Z L R F A X Y U S D J K Z L D K R N S H G N F I V J
Y Q T Q U X Q B Q V Y U V L L T R E V J Y Q T M K Y R D M F D
V F P J U D E F H Z W E T Z Y V G W H K K Q E T G F Q J N C E
C G W H K K ?

The second paragraph (P-2) seems to be a polyalphabetic system containing as many as 8 different alphabetic sets with perhaps 2 codes for each alphabet.

D Q M C P F Q Z D Q M M I A G P F X H Q R L G
T I M V M Z J A N Q L V K Q E D A G D V F R P J U N G E N A
Q Z G Z L E C G Y U X U E E W J T B J L B Q C R T B J D F H R R
Y I Z E T K Z E M V D U F K S J H K F W H K U W Q L F Z F T I
H H D D D U V H ?

The third paragraph (P-3) seems be a transpositional system where the letters are expanded to form a grid or matrix.

D W K B F U F P W N T D F I Y C U Q Z E R E
E V L D K F E Z M O Q Q J L T T U G S Y Q P F E U N L A V I D X
F L G G T E Z ?

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The forth paragraph (P-4) seems to be a completely random system using a one-time code. This part is very difficult to break. A brute force method using a computer may be necessary.

F K Z B S F D Q V G O G I P U F X H H D R K F
F H Q N T G P U A E C N U V P D J M Q C L Q U M U N E D F Q
E L Z Z V R R G K F F V O E E X B D M V P N F Q X E Z L G R E
D N Q F M P N Z G L F L P M R J Q Y A L M G N U V P D X V K P
D Q U M E B E D M H D A F M J G Z N U P L G E W J L L A E T G
E N D Y A H R O H N L S R H E O C P T E O I B I D Y S H N A I A
C H T N R E Y U L D S L L S L L N O H S N O S M R W X M N I
T P R N G A T I H N R A R P E S L N N E L E B L P I I A C A E
VALID CHAR W M T W N D I T I E E N R A H C T E N E U D R E T N H A E O E
T F O L S E D T I W E N H A E I O Y T E Y Q H E E N C T A Y C R
E I F T B R S P A M H N E W E N A T A M A T E G Y E E R L B
T E E F O A S F I O T U E T U A E O T O A R M A E E R T N R T I
E S E D D N I A A H T T M S T E W P I E R O A G R I E W F E B
A E C T D D H I L C E I H S I T E G O E A O S D D R Y D L O R I T
R K L M L E H A G T D H A R D P N E O H M G F N F E U H E
E C D M R I P F E I M E H N L S S T T R T V D O H W ?

The fifth paragraph (P-5) seems to be a yet-undefined system that may require an unusual plain-text key. This part may be unbreakable.

O S K R
U O X O G H U L B S O L I F B B W F L R V Q Q P R N G K S S O
T W T Q S J Q S S E K Z Z W A T J K L U D I A W I N F B N Y P
V T T M Z F P K W G D K Z X T J C D I G K U H U A U E K C A R

Lets move on now to the ciphe text. As you know without the correct plain text key the cipher text cannot unlock the code text.

Here are some of the clues that were recently learned about the cipher text.

The 866 characters in the code text contain no "?". The theory is that there may be a line by line relationship. There might even be a crossword puzzle relationship.

Here are the 28 lines of cipher text.

2	lines have	30 characters
26	lines have	31 characters
28	lines	866 characters

```
  A B C D E F G H I J K L M N O P Q R S T U V W X Y Z A B C D
A K R Y P T O S A B C D E F G H I J . M N Q U V W X Z K R Y P
B R Y P T O S A B C D E F G H I J L M N Q U V W X Z K R Y P T
C Y P T O S A B C D E F G H I J L M N Q U V W X Z K R Y P T O
D P T O S A B C D E F G H I J L M N Q U V W X Z K R Y P T O S
E T O S A B C D E F G H I J L M N Q U V W X Z K R Y P T O S A
F O S A B C D E F G H I J L M N Q U V W X Z K R Y P T O S A B
G S A B C D E F G H I J L M N Q U V W X Z K R Y P T O S A B C
H A B C D E F G H I J L M N Q U V W X Z K R Y P T O S A B C D
I B C D E F G H I J L M N Q U V W X Z K R Y P T O S A B C D E
J C D E F G H I J L M N Q U V W X Z K R Y P T O S A B C D E F
K D E F G H I J L M N Q U V W X Z K R Y P T O S A B C D E F G
L E F G H I J L M N Q U V W X Z K R Y P T O S A B C D E F G H
M F G H I J L M N Q U V W X Z K R Y P T O S A B C D E F G H I
N G H I J L M N Q U V W X Z K R Y P T O S A B C D E F G H I J
O H I J L M N Q U V W X Z K R Y P T O S A B C D E F G H I J L
P I J L M N Q U V W X Z K R Y P T O S A B C D E F G H I J L M
Q J L M N Q U V W X Z K R Y P T O S A B C D E F G H I J L M N
R L M N Q U V W X Z K R Y P T O S A B C D E F G H I J L M N Q
S M N Q U V W X Z K R Y P T O S A B C D E F G H I J L M N Q U
T N Q U V W X Z K R Y P T O S A B C D E F G H I J L M N Q U V
U Q U V W X Z K R Y P T O S A B C D E F G H I J L M N Q U V W
V U V W X Z K R Y P T O S A B C D E F G H I J L M N Q U V W X
W V W X Z K R Y P T O S A B C D E F G H I J L M N Q U V W X Z
X W X Z K R Y P T O S A B C D E F G H I J L M N Q U V W X Z K
Y X Z K R Y P T O S A B C D E F G H I J L M N Q U V W X Z K R
Z Z K R Y P T O S A B C D E F G H I J L M N Q U V W X Z K R Y
  A B C D E F G H I J K L M N O P Q R S T U V W X Y Z A B C D
```

extra "L"

Let's move on now to the 106-character Morse code message.

Here are some of the clues that were recently learned about the Morse code message.

As you know international Morse code follows a standard representation. For example SOS in Morse code is: ooo --- ooo

Notice that SOS read backwards is SOS. Another example of a palindrome is LEVEL. The longest palindrome is: a man, a plan, a canal, panama! If converted to Morse code that message would read the same if decoded ---> (right) as well as <--- (left).

International Morse Code is as follows:

A o-	J o---	S ooo
B -ooo	K -o-	T -
C -o-o	L o-oo	U oo-
D -oo	M --	V ooo-
E o	N -o	W o--
F oo-o	O ---	X -oo-
G --o	P o--o	Y -o--
H oooo	Q --o-	Z --oo
I oo	R o-o	

1 o----	6 -oooo
2 oo---	7 --ooo
3 ooo--	8 ---oo
4 oooo-	9 ----o
5 ooooo	0 -----

The Morse Code section of our puzzle, the direction of which is not discernible given its position lying flat on the ground and approachable from all sides is as follows:

```
o  o  o  oo-o  -o  -  oo  o--  oo  oo-
E  E  E  F  N  T  I  W  I  U                    --->
E  E  E  L  A  T  I  G  I  D                    <---

-  oo  -  -o  -  o  o-o  o--o  o-o  o  -  o-  oo
T  I  T  N  T  E  R  P  R  E  T  A  I           --->
T  I  T  A  T  E  R  P  R  E  T  N  I           <---

o-o  -oo  ---  --o-  ooo  oo  -
R  D  O  G  S  I  T                             --->
R  U  O  Y  S  I  T                             <---

o  o-  ---  oo  -  oo  ooo  ---  o--o
E  A  O  I  T  I  S  O  P                       --->
E  N  O  I  T  I  S  O  P                       <---

ooo  ---  ooo
S  O  S                                         --->
S  O  S                                         <---

o  --o-  oo-o  oo-o  -o  -oo  -  o-o  oo  -ooo  o  o
E  Q  F  F  N  D  T  R  I  B  E  E              --->
E  Y  L  L  A  U  T  R  I  V  E  E              <---

o  oo-o  ooo-  oo  oco  oo  -ooo  o-  oo  o  o  o  o  o
E  L  B  I  S  I  V  N  I  E  E  E  E  E        --->
E  L  B  I  S  I  V  N  I  E  E  E  E  E        <---

o  o  --o  ---  oo-  -o  ocoo  ooo  o  o  o
E  E  W  O  D  A  H  S  E  E  E                 --->
E  E  W  O  D  A  H  S  E  E  E                 <---

o  o  o  o  o  ooo  o  o-o-  o-o  ---  o-oo
E  E  E  E  E  S  E  C  R  O  F                 --->
E  E  E  E  E  S  E  C  R  O  F                 <---

o  o  o  oo-  oo  o-o-  -oo  oo-o
E  E  E  D  I  C  U  L                          --->
E  E  E  D  I  C  U  L                          <---

o  --o-  o-o  ---  --  o  --
E  Y  R  O  M  E  M                             --->
E  Y  R  O  M  E  M                             <---

-o--  o-o
Y  R                                            --->
Q  R                                            <---
```

And here is one solution to the Morse code puzzle:

DIGITAL INTERPRET AT IT TIS YOUR POSITION SOS VIRTUALLY
INVISIBLE SHADOW FORCES LUCID MEMORY RY

If CIA art is a theme or source of clues for the plain-text key, the perhaps the five main art objects found in the CIA foyer contain some text that can be used as a key to one or more of the five paragraphs.

The five major art objects that stand as monuments and could be considered good plain-text key sources are: 1# brass nameplates, a statue, a biblical quotation, a wall bust, and a bock of names.

1# brassname plates, each bearing a former CIA director's name, read:

William Joseph Donovan
Sidney William Souers
Hoyt Sanford Vandenberg
Roscoe Henry Hillenkoetter
Walter Bedell Smith
Allen Welsh Dulles
John Alex McCone
William Francis Raborn
Richard Helms
James R Schlesinger
William E Colby
George Bush
Stansfield Turner
William J Casey

The statue reads:

Founding Father
Major General
William J Donovan
Director Office of Strategic Services
Forerunner of the CIA

The biblical quotation on the wall reads:

And Ye Shall Know The Truth
And The Truth Shall Make You Free
John VII-XXXII

The marble bust reads:

Allen Welsh Dulles
Director of Central Intelligence
1953-1961
His Monument Is Around Us

The Original Headquarters Building (OHB) entrance contains a book that is on display to everyone who enters. This book contains 23 of the 53 names of all CIA agents that died in service. Note that 30 of these agents are not named and still remain a secret.

In Honor of Those Members of The CIA
Who Gave Their Lives in The service of their country

* * * \

1972 *
1972 *

1974 *

1975 * William E Bennett
1975 * Richard S Welch

1976 *

1978 *
1978 *
1978 *

1983 *
1983 * Robert C Ames
1983 *
1983 *
1983 *
1983 *
1983 *
1983 *

1984 * Scott J Vanlieshout
1984 * Curtis R Wood
1984 *
1984 *

1985 * William F Buckley

1987 * Richard D Krobock

1988 *

Now for the most difficult part. Did the artist give you all the parts needed to solve the puzzle within the puzzle parts or must you extract plain text keys from surrounding sources?

Most cryptograms have three parts, a code ext, a cipher text, and the plain text.

Below is a simple cryptogram, which may be fun for novices as well as experienced "cripples." Here is the code text:

OJM TUTMX XUFKETW KMJRETP. QATMC EN C WJESQHJI QACO EN

NEFXET, ITCQ. CIP VMJIG.

cipher text: CRYPTOGAHBDEFIJKLMNQSUVWXZ
 plain text: AEOJBFGHIJKLMNCPQRSTUVWXYZ

In the example above OJM spells FOR. Try to complete the message.

Did you know that...

FOR ____ _____ _____, ____ __ _ _____ ___ __

_____, __ ', __ _____.

Here are some contributions from the popular conversation pits that may provide more clues to some plain text sources.

The number 866 might be a clue to P-1 What happened in August 1956? Louisa?

Invisible forces might mean "spies" indicating the book of names.

The words "copper", "petrified", "wood", "wate.", "bench", "compass", "loadstone", and "granite" may be important.

The digraph code in P-1 may use "NS" or "EW" for North-South and East-West.

The 23 names could make up the 8 alphabets for P-2.

All the characters in the 23 names might be a matrix for P-3.

The first character of each of the 23 names might be the code to the random part of P-4.

And finally, hummingbirds never remember the words to songs.

(b) (3)
OGA

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